Amendments to the Claims

1. (Currently Amended) A process for selectively amplifying nucleic acid sequences comprising contacting multiple single stranded non-circular ~~random~~ degenerate oligonucleotide primers (P1), one or more single stranded amplification target circles (ATCs), a DNA polymerase and multiple deoxynucleoside triphosphates (dNTPs), under conditions promoting said contacting, wherein each ATC hybridizes to a plurality of said P1 primers, wherein said conditions promote rolling circle replication of said amplification target circle by extension of the P1 primers to form multiple tandem sequence DNA (TS-DNA) products and wherein the TS-DNA is labeled during or following synthesis~~at least one such dNTP renders the TS-DNA resistant to nuclease activity following incorporation thereinto~~

Claims 2-4 (Cancelled).

5. (Original) The process of claim 1 wherein said multiple primers are within the range of 2 to 50 nucleotides in length.

6. (Original) The process of claim 1 wherein said multiple primers are within the range of 2 to 35 nucleotides in length.

7. (Original) The process of claim 1 wherein said multiple primers are within the range of 2 to 10 nucleotides in length.

8. (Original) The process of claim 1 wherein said multiple primers are hexamers.

9. (Original) The process of claim 1 wherein said multiple primers are octamers.

Claims 10-13 (Cancelled).

14. (Original) The process of claim 1 wherein said ATC is a single stranded RNA circle.

Claims 15-19 (Cancelled).

20. (Original) The process of claim 1 wherein said ATC is no larger than about 10,000 nucleotides in size.

Claim 21 (Cancelled).

22. (Original) The process of claim 1 wherein said ATC is no larger than about 1,000 nucleotides in size.

23. (Original) The process of claim 1 wherein said ATC is no larger than about 100 nucleotides in size.

24. (Currently Amended) The ~~method~~ process of claim 1 wherein the amplification target circle comprises a single stranded bacteriophage DNA.

25. (Currently Amended) The ~~method~~ process of claim 1 wherein the amplification target circle to be amplified is of unknown sequence composition.

Claim 26 (Cancelled).

27. (Previously Presented) The process of claim 1 wherein at least one said dNTP is radiolabeled.

Claim 28 (Cancelled).

29. (Previously Presented) The process of claim 1 wherein said at least one nucleotide is a phosphorothioate nucleotide.

Claims 30-34 (Cancelled).

35. (Previously Presented) The process of claim 1 wherein said at least one such dNTP is a modified nucleotide.

36. (Original) The process of claim 1 wherein at least one P1 primer is attached to a solid support.

37. (Original) The process of claim 36 wherein said solid support is made of glass or plastic.

38. (Original) The process of claim 1 wherein said multiple primers are selected from the group consisting of primers resistant to exonuclease activity, primers not resistant to exonuclease activity and a mixture of primers sensitive to exonuclease activity and resistant to exonuclease activity.

39. (Previously Presented) The process of claim 1 wherein said multiple primers are resistant to exonuclease activity.

Claim 40 (Cancelled).

41. (Original) The process of claim 38 wherein said exonuclease activity is caused by a 3'-5'-exonuclease.

42. (Original) The process of claim 38 wherein said exonuclease activity is caused by a DNA polymerase having 3'-5'-exonuclease activity.

Claim 43 (Cancelled).

44. (Original) The process of claim 38 wherein each of said exonuclease-resistant primers contains at least one nucleotide making said primer resistant to exonuclease activity.

45. (Original) The process of claim 44 wherein said at least one nucleotide is a modified nucleotide.

46. (Original) The process of claim 45 wherein said modified nucleotide is a 3'-terminal nucleotide.

47. (Original) The process of claim 46 wherein said modified nucleotide is a phosphorothioate nucleotide.

48. (Original) The process of claim 44 wherein each of said exonuclease-resistant primers contains at least two nucleotides making said primer resistant to exonuclease activity.

49. (Original) The process of claim 35 wherein said at least one nucleotide is located at other than the 3'-terminal position.

Claim 50 (Cancelled).

51. (Original) The process of claim 1 wherein said DNA polymerase is a DNA polymerase having 3',5'-exonuclease activity and is a member selected from the group consisting of bacteriophage Φ29 DNA polymerase, Tts DNA polymerase, phage M2 DNA polymerase, VENT™ DNA polymerase, Klenow fragment of DNA polymerase I, T5 DNA polymerase, PRD1 DNA polymerase, T4 DNA polymerase holoenzyme, T7 native polymerase and Bst DNA polymerase.

52. (Original) The process of claim 1 wherein said DNA polymerase is bacteriophage Φ29 DNA polymerase.

53. (Previously Presented) The process of claim 1 wherein said DNA polymerase is bacteriophage Φ29 DNA polymerase and said multiple primers are resistant to exonuclease activity.

Claim 54 (Cancelled).

55. (Original) The process of claim 1 wherein said DNA polymerase does not exhibit 3',5'-exonuclease activity.

56. (Previously Presented) The process of claim 55 wherein said DNA polymerase is selected from the group consisting of Taq, Tfl, and Tth DNA polymerase, and Eukaryotic DNA polymerase alpha.

57. (Original) The process of claim 1 wherein said DNA polymerase is a reverse transcriptase.

58. (Original) The process of claim 1 wherein said ATC is RNA and said DNA polymerase is a reverse transcriptase.

59. (Previously Presented) The process of claim 38 wherein said multiple primers are a mixture of primers sensitive to exonuclease activity and resistant to exonuclease activity.

Claims 60-68 (Cancelled).

69. (Previously Presented) The process of claim 1 wherein said conditions that promote rolling circle replication of said amplification target circle by extension of the P1 primers to form multiple tandem sequence DNA (TS-DNA) products are isothermic conditions.

70. (Previously Presented) The process of claim 1 wherein each ATC hybridizes simultaneously to a plurality of said P1 primers.

71. (New) The process of claim 1, wherein TS-DNA is labeled with a fluorescent label.

72. (New) The process of claim 71, wherein the fluorescent label is a CyDye.

73. (New) The process of claim 72, wherein the CyDye is chosen from the group consisting of Cy2, Cy3, Cy3.5, or Cy5.5.

74. (New) The process of claim 71, wherein the fluorescent label is chosen from the group consisting of fluorescein, 5,6-carboxymethyl fluorescein, Texas red, nitrobenz-2-oxa-1,3-diazol-4-yl (NBD), coumarin, dansyl chloride,or rhodamine.

75. (New) The process of claim 1 wherein at least one said dNTP is a fluoresecence-labeled nucleotide.

76. (New) (New) The process of claim 75 wherein at least one said dNTP is fluorescein-isothiocyanate-dUTP, Cyanine-3-dUTP, or Cyanine-5-dUTP.

77. (New) The process of claim 1, wherein at least one said dNTP is modified.

78. (New) The process of claim 78, wherein at least one said dNTP is modified with biotin, or a hapten.

79. (New) The process of claim 1, wherein at least one said dNTP is a nucleotide analog.

80. (New) The process of claim 1 wherein at least one said dNTP comprises a radioactive isotope.

81. (New) The process of claim 1, wherein the label is incorporated into the TS-DNA during the formation of TS-DNA.

82. (New) The process of claim 1, wherein the TS-DNA is labeled with a labeled probe.

83. (New) The process of claim 1, wherein the TS-DNA is labeled with an intercalating label.

84. (New) The process of claim 1, wherein the TS-DNA is labeled by incorporation of a labeled dNTP.